THE EFFECTIVENESS GEOGEBRA SOFTWARE AS MATHEMATICS LEARNING MEDIA TOWARD MATHEMATICS LEARNING OUTCOMES IN STUDENTS CLASS VIII AT SMP 2 SUKOHARJO WONOSOBO REGENCY

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ABSTRACT

Lack of attention of students for teacher's explanation in learning influence student's learning outcomes mathematics. One of media learning who focus on student's attention are using software GeoGebra. The purpose of research to know The Efectivenest Geogebra Software as Mathematics Learning Media Toward Student Mathematics Learning Outcomes in Class VIII at SMP 2 Sukoharjo of Wonosobo Regency on the Even Semester Of Academic Year 2015/2016. The population in this study were all students of class VIII SMP 2 Sukoharjo Wonosobo Regency on the even Semester Academic Year 2015/2016. Who consists of three class in totally 86 students. This sample research was the VIII D class for experiment class and VIIIC controlling class selected as random sampling for class. The data collection method uses the test method. Instrument research was mathematics learning outcomes. Data analysis used the hypothesis test. The result of research by using 5% extend significantly and the degrees of freedom are 39, that's point are : (1) there differences of mathematics learning outcomes that using software GeoGebra learning media without use software geogebra.it's pointed in $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$. In order that $t_{count} > t_{table}$ and (2) mathematics learning used software GeoGebra as learning media more effective than learning compared without use software GeoGebra. It's a point of $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$ in order that $t_{count} > t_{table}$.
Keywords: Effectivity, Software Geogebra, Mathematic Learning Outcomes.

INTRODUCTION

The rapid development of science and technology has led to competition in various fields of knowledge, one of which is the field of education. Education is a complex process, but its complexity always develops along with human development. Through education also various aspects of life are developed through the process of learning and learning. Various problems in the learning process need to be harmonized and stabilized so that learning conditions are created in accordance with the objectives to be achieved and can obtain optimal results. To complete the learning and learning components in school, teachers should utilize media or assistive devices that are able to actively stimulate learning to develop the potential of students to have spiritual spiritual strength, self-control, personality, intelligence, noble character, and skills needed by students, both in the community , nation and state (Law Number 20 Year 2003).

Education will be meaningful if in the process of learning consider students. Good teaching and learning activities are the teacher as a facilitator who does not dominate the activity but helps create conducive conditions and provides motivation, guidance and uses learning media appropriately so as to develop student creativity and potential.

Mathematics is one branch of science that underlies the development of science and technology, so it has an important role in human life. The importance of the role of mathematics requires the mastery of mathematics from an early age. Therefore, these subjects at every level of education from elementary, junior high, high school and university. In fact, mathematics is often regarded as a subject that is difficult to understand. That is because mathematical objects that are abstract then require understanding, logical thinking skills, and high accuracy from students. Based on information obtained from observations with a number of students at SMP Negeri 2 Sukoharjo on September 14, 2015, most students found learning mathematics difficult and very boring. Mathematics is like an obstacle that is difficult to overcome by students, this is because by students who do not really

understand the mathematics material being taught, so they often have difficulty in learning and assume that mathematics is a complex and difficult subject.

Researchers also conducted interviews with mathematics teachers in class VIII of SMP Negeri 2 Sukoharjo, namely Mrs. Yani Trianti. From the interviews with Ms. Yani Trianti, information was obtained that learning is still centered on teachers or expository (teacher-centered), learning resources are still limited to books and worksheets and have not used any learning media, especially Geogebra Software, he also said that schools also have facilities which are quite adequate, namely a number of computer units, but has never been used for mathematics learning, and the average grade of Grade VIII students is still below the expected minimum completeness criteria, reaching 76. This can be seen in Table 1 below.

Table 1. Mathematics Test scores of Class VIII Students of SMP Negeri 2 Sukoharjo, Wonosobo Regency, 2015/2016 Academic Year

Class	**VIII A**	**VIIIB**	**VIIIC**	**VIII D**
Average value	71,7	71,1	64,7	62,2

(*sources*: SMP N 2 Sukoharjo)

From the table above it can be seen that the average value of students' mathematics tests is still below the KKM, so it can be said that student learning outcomes are still low. The low student learning outcomes must be corrected immediately so that it matches the expected goals. One factor is the low student learning outcomes in learning mathematics because teachers do not exactly choose the learning media. The learning media that have been applied in SMP Negeri 2 Sukoharjo are still centered on the blackboard and have never used any media, especially technology-based media in mathematics learning. This is based on researchers' observations on September 14, 2015.

In each process of learning activities, the teacher should choose the right learning media. The instructional media chosen by the teacher should be able to attract the attention of students so that in more active learning, especially mathematics. Therefore, mathematics learning is made into interesting lessons and uses technology-based learning media.

Along with the development of science and technology, the world of education must be able to utilize technology in an effort to improve the quality of education, the use of technology can be by the use of computer technology. In particular mathematics learning, learning presented with computer technology will be able to help demonstrate or visualize abstract mathematical concepts so that students will become more interested in learning and feel mathematics learning becomes more enjoyable and is expected to be able to motivate and improve student understanding.

One of the software offered is making technology-based learning media and also is educational namely Geogebra software. This software is ideal for use in learning mathematical concepts that require high accuracy, repetitive concepts or principles, precise, fast, and accurate graphic completion. In addition, Geogebra software also provides several features so that the studied mathematical objects can be colored so that the data is more lively, interesting, and can also be used to attract students' attention. This Geogebra software can be used freely by downloading it from www.geogebra.com. This website is visited by around 300,000 people every month on average. To date, this program has been used by thousands of students and teachers from around 192 countries.

METHODS

This type of research is experimental research. In this study involving two classes, namely the experimental class I and experimental class II. The design in this study used the Posttest Only Control Group Design. According to Sugiyono, (2011: 112). This research was conducted in SMP Negeri 2 Sukoharjo, Wonosobo district, in the eighth-grade students of the even semester. The population in this study were all students of class VIII Even Semester, SMP Negeri 2 Sukoharjo, Wonosobo Regency,

Academic Year 2015/2016. The research subjects included classes VIII A, VIII B, VIII C, and VIII D, all classes were homogeneous because they were arranged randomly.

This research uses two data collection methods namely documentation and test methods. The documentation method is used to obtain the name of the student along with the value of the midterm even in mathematics in class VIII of SMP Negeri 2 Sukoharjo, Kab. Wonosobo. This data is used to observe the initial conditions of the population with normality and homogeneity tests. Normality test to find out whether the samples used in this study are normally distributed or not. If the data is normally distributed then data analysis is performed to prove the research hypothesis (Sudjana, 2002: 273). While the homogeneity test is used to test whether the sample to be used in this study is at the same starting point. The homogeneity test is based on samples that are normally distributed (Sudjana, 2002: 273).

Test Method. According to Arikunto, Suharsimi. (2009: 86) a test can be said to have a high level of confidence if the test can provide permanent results. This method is used to get data about student learning outcomes on the subject matter of the Circle after being given the material. The type of test used is the Multiple Choice Test (multiple choice) with 4 alternative answers, namely a, b, c, or d and there is only one answer that is most appropriate, so scoring is given a value of 1 if the answer is correct and 0 for the wrong answer.

The research instrument is a tool used to measure observed natural and social phenomena. Specifically, all these phenomena are called research variables (Sugiyono, 2012: 147). In this study, the instruments used were mathematics learning achievement tests.

RESULTS AND DISCUSSION

The results of the analysis conducted by researchers to find out the first objective is to know the differences in mathematics learning outcomes using GeoGebra software as learning media and without using GeoGebra software as learning media on the subject of Circle VIII grade students in the even semester of SMP N 2 Sukoharjo, Wonosobo Regency 2015/2016 Academic Year. By using the first hypothesis test using a two-part hypothesis test. From the two-party hypothesis test that has been conducted by researchers with a significant level of 5% and a degree of freedom 39, the value obtained $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$ so that $t_{count} > t_{table}$ then H_0 is rejected, which means that there are differences in mathematics learning outcomes of students who get learning by using Geogebra Software as a learning media with student learning outcomes in mathematics who get learning without using Geogebra Software as learning media (direct learning) in learning mathematics Circle material in class VIII students Even Semester of SMP Negeri 2 Sukoharjo Regency. Wonosobo 2015/2016 school year.

The second hypothesis test result is to find out more effective learning between learning using Geogebra Software as a learning medium and learning without using Geogebra Software as a learning media on the subject of the circle of VIII grade students in the even semester of SMP N 2 Sukoharjo, Kab. Wonosobo Academic Year 2015/2016, used the second hypothesis test using a one-party hypothesis test. From the one-party hypothesis test conducted research with a significant level of 5% and a degree of freedom 39, value $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$ so that $t_{count} > t_{table}$ then H_0 is rejected, which means that learning mathematics using Geogebra Software as a learning medium is more effective than direct learning in learning mathematics Mathematics material for students of class VIII in the Semester Odd Semester of SMP Negeri 2 Sukoharjo, Kab. Wonosobo 2015/2016 school year

CONCLUSION

Based on the results of research and discussion as described, several research conclusions can be drawn as follows.

1. There is a difference in the results of learning mathematics students who get learning by using Geogebra Software as a learning media with the results of learning mathematics students who get learning without using Geogebra Software as a learning media (direct learning) in learning mathematics Circle material in class VIII Even Semester Public Schools 2 Sukoharjo Regency

Wonosobo 2015/2016 school year. This is indicated by the results of the First Hypothesis test with a significant level of 5% and a degree of freedom = 39, obtained values $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$, so that $t_{count} > t_{table}$ Then reject H_0 and H_1 accepted.

2. Learning by using Geogebra Software as a learning media is more effective than direct learning in learning mathematics material Circle students of class VIII Odd Semester SMP Negeri 2 Sukoharjo Kab. Wonosobo 2015/2016 school year. This is indicated by the results of the second hypothesis test wherewith a significant level of 5% and a degree of freedom 39, obtained values $t_{count} = 3{,}2549$ and $t_{table} = 1{,}6849$, so the value $t_{count} > t_{table}$ Then reject H_0 and H_1 accepted.

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